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Perceived Levels of Stress and Coping Styles in Physicians and Nurses at a City Hospital during the COVID-19 Pandemic

COVID-19 Pandemi Sürecinde Bir Şehir Hastanesinde Hekim ve Hemşirelerin Algılanan Stres Düzeyleri ve Baş Etme Tarzları

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ABSTRACT

Introduction: The acute period of the COVID-19 pandemic forced stress-coping resources on physicians and nurses because of its uncertainty and catastrophe. Therefore, the perceived levels of stress and coping styles of the healthcare workers have been a matter of concern for the healthcare industry. This cross-sectional descriptive study aimed to determine the perceived levels of stress and coping styles in physicians and nurses at a city hospital during the COVID-19 pandemic.
Methods: Data were collected from 372 nurses and physicians using self-report questionnaires the Perceived Stress Scale and the Ways of Coping Scale.
Results: The findings showed that the nurses had higher levels of stress than the physicians. More of the physicians used the positive reappraisal style of coping than nurses whereas more of the nurses used the avoidance coping and distancing styles of coping than the physicians. In addition, age, gender, level of education, and level of income determine the perceived level of stress and the associated coping style.
Conclusion: The results of this study shed light on the active and passive coping mechanisms used by nurses to deal with stress. Nurses and physicians should be regularly provided with applied education within the scope of psychosocial support programs to help them adopt active coping styles such as positive reappraisal, confronting coping, and seeking social support.

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ÖZET

Giriş: COVID-19 pandemisinin akut dönemi belirsizlik ve yaratmış olduğu felaket nedeniyle doktor ve hemşirelerin stresle başa çıkma kaynaklarını zorladı. Bu nedenle çalışanlarının algılanan stres ile baş etmeleri sağlık sektörü için endişe konusu olmuştur. Bu kesitsel tanımlayıcı çalışmada COVID-19 pandemi döneminde bir şehir hastanesinde çalışan doktor ve hemşirelerin algılan stres ve baş etme tarzları incelenmiştir.
Yöntem: Araştırmanın verileri kişisel bilgi formu, Algılanan Stres Ölçeği ve Stresle Baş etme Ölçeği aracılığı ile hekim ve hemşirelerden oluşan 372 kişiden toplanmıştır.
Bulgular: Bulgular hemşirelerin algılanan stres düzeylerinin hekimlerden yüksek olduğunu göstermiştir. Doktorlar olumlu yeniden değerlendirme baş etme tarzını hemşirelerden daha fazla kullandıklarını göstermiştir. Hemşireler uzak durma ve kaçınma baş etme tarzını daha fazla kullanmaktadır. Sosyodemografik özelliklerden yaş, cinsiyet, eğitim ve gelir düzeyinin algılanan stres ve baş etme tarzlarını etkilediği belirlenmiştir.
Sonuç: Bu çalışmanın bulguları özellikle hemşirelerin kullandıkları aktif ve pasif başetme tarzlarına yönelik bilgi sağlamıştır. Psikososyal destek programları kapsamında özellikle hemşirelere düzenli olarak stresle etkili baş etme eğitimleri uygulamalı olarak verilmeli. Özellikle etkili başetme yöntemlerinden olan olumlu yeniden değerlendirme, problemlerle aktif başa çıkma ve sosyal destek arama gibi yöntemleri benimsemeleri desteklenmelidir.

1. Introduction

During the pandemic, health workers, particularly doctors and nurses, are experiencing significant levels of stress for a variety of reasons, yet stress is an inevitable part of their lives. The reactions and coping mechanisms triggered by stress vary from person to person and depend on gender, age, level of education, marital status, and level of income (1,2). Coping with stress is defined as the effort to reduce reactions to stressors, or activation of thoughts and behaviors for managing internal and external stress (3). Effective coping styles reduce the negative effects of stress and improve quality of life. In general, coping styles refer to the various

strategies and techniques that individuals use to manage stressful situations and it can be divided into 2 groups: Problem-focused and emotion-focused. Problem-focused coping focuses on addressing stressors whereas emotion-focused coping regulates the negative responses to stressors (4).

Since 2003, significant improvements have been implemented in Turkey's Health Transformation Program. City Hospitals have been constructed throughout the country via public-private partnerships (5). These hospitals are stressful workplaces because they serve patients under intense stress. These city hospitals include general, cardiovascular, neurology, pediatric, gynecology, and oncology departments, and especially high security forensic psychiatric units and rehabilitation centers; however, they are understaffed and underfunded, resulting in a high workload. The centralized administrative structure of the city hospitals delays service-related decision making. The staff at city hospitals has difficulty in making decisions due to the multi-headed administrative structure. Moreover, patients have difficulty in accessing city hospitals because they live far from the city center and spend an excessive amount of time getting from one hospital department to another due to their size (6).

Physicians and nurses are considered to be an at-risk group for intense stress (7,8). Work-related stress results in demotivation, alienation, absenteeism, malpractice, a high turnover rate, and decreased productivity and efficiency (9). The COVID-19 pandemic has embraced nurses facing uncertainty related to patient care and personal safety (10,11). The perceived levels of stress and coping styles of healthcare workers have significant implications for the healthcare industry. Therefore, it has been imperative that hospitals institute effective coping measures at both the individual and organizational level and manage stress effectively by evaluating the risks (12).

High levels of stress can lead to burnout, fatigue, and increased risk of errors in patient care. On the other hand, effective coping styles can help healthcare workers manage their stress levels and improve their overall wellbeing. Therefore, it is important for healthcare organizations to prioritize the mental health and wellbeing of their employees. Research on the types of coping styles physicians and nurses tend to adopt is limited. Physicians and nurses experience high levels of stress due to the existing workload and responsibilities under normal circumstances; however, working at a Turkish city hospital during the COVID-19 pandemic exacerbated the situation and resulted in increased work-related stress. The present study aimed to identify the factors affecting the levels of stress and the coping styles that have been used by physicians and nurses at a city hospital during the early phase of the pandemic in Turkey.

2. Methods

This cross-sectional descriptive study was carried out at a city hospital. The sample consisted of 372 participants (130 physicians and 242 nurses) that were working at the city hospital between February and April 2021. Participant inclusion criteria included (1) working at the city hospital as a physician or nurse, (2) agreement to participate in the study, (3) provision of informed consent and clicking the participation confirmation button on the Google Form, and (4) completing the data collection forms. Doctors and nurses who declined to take part in the study and did not click the Google form's approval button were not included in the study. We used STROBE to develop standardized and transparent reporting for nonrandomized intervention (13).

All physicians and nurses were delivered a link via WhatsApp and e-mail to Google Forms with which they completed a Sociodemographic Characteristics Questionnaire, the Perceived Stress Scale, and the Ways of Coping Inventory. Participation was voluntary.

Sociodemographic Characteristics Questionnaire: This form was based on a literature review (14-17). The form consisted of 15 items on sociodemographic characteristics (such as gender, age, and marital status), and work-related characteristics (such as place of employment, work experience, weekly working hours, and income).

Perceived Stress Scale (PSS): PSS is a self-report measure of perceived stress during the previous month. It was developed by Cohen et al. and adapted to Turkish by Eskin et al. (18). The 14-item scale does not have subscales. The 5 point Likert type response scale ranges from 0 (never) to 4 (nearly always). The total score ranges from 0 to 56, with higher scores indicating higher levels of stress (11-26: low stress; 27-41: moderate stress; 42-56: high stress). The scale had a Cronbach's alpha of 0.901 for this study.

Ways of Coping Inventory (WCI): WCI was developed by Lazarus and Folkman4 and adapted to Turkish by Şahin and Durak (19). The scale's 30 items are rated on a 4-point Likert-type scale (0: does not apply and/or not used; 3: used a great deal). The instrument has 5 subscales: Confronting coping (CC); positive reappraisal (PR); seeking social support (SSS); avoidance; distancing. The total score of each subscale is divided by the number of its items with higher scores indicating a higher likelihood of using the corresponding coping style. The score for

each subscale is calculated independently. The total score for CC ranges from 7 to 28, the total score for avoidance ranges from 8 to 32, the total score for distancing ranges from 6 to 24, the total score for PR ranges from 5 to 20, and the total score for SSS ranges from 4 to 16. CC, PR, and SSS are active coping styles whereas avoidance and distancing are passive coping styles. Those that use active coping styles can cope with stress effectively whereas those that use passive coping styles fail to cope with stress effectively.

2.1. Statistical analysis

Data were analyzed using IBM SPSS Statistics for Windows v.25. Frequency tables and descriptive statistics were used to interpret the findings. Normally, distributed data were analyzed using the independent samples T-test. A multiple linear regression model was used to examine the variables affecting PSS and WCI scores. The level of statistical significance was set at $p<0.05$.

Ethics Committe Approval: Ethics committee approval was received from an ethical committee of the public university (decision no: 347, decision date: 11.01.2021). Permission was obtained from the institution for the research. The necessary permissions for the online use of the scales are acquired via email. The Participants confirmed their voluntariness and willingness to engage in the study by approving marks on the google form.

2.2. Ethical considerations

Ethics committee approval was received from an ethical committee of Çankırı Karatekin university (decision no: 347, decision date: 11.01.2021). Permission was obtained from the institution for the research. The necessary permissions for the online use of the scales are acquired via email. The Participants confirmed their voluntariness and willingness to engage in the study by approving marks on the google form.

3. Results

Table 1 shows the participants' sociodemographic characteristics. The mean age of the participants was 29.42±1.32. More of the participants were unmarried women. Half of the participants had a having middle income and less than 7 years of work experience. 52.4% of participants worked in the inpatient clinic.

Table 2 shows the mean PSS and WCI scores. There was a significant difference in the PSS score, and the WCI Positive Reappraisal, Avoidance, and Distancing coping subscales scores between the physicians and nurses. The nurses had a significantly higher PSS score than the physicians (p=0.00). There wasn't a significant difference in the WCI CC and SSS scores between the physicians and nurses (p=0.097 and p=0.851, respectively). The physicians had a significantly higher WCI PR score, and lower avoidance and distancing scores than the nurses ($p<0.05$).

Table 1. Sociodemographic characteristics (n=372)

Sociodemographic Characteristics		Physician	Nurse	Total
		n	n	%
Mean age (years)	29.42±1.32			
Gender	Female	65	192	69.1
	Male	65	50	30.9
Marital status	Single	73	163	66.0
	Married	57	59	34.0
Having children	Yes	51	66	31.5
	No	79	176	68.5
Income	Low	26	37	16.9
	Middle	65	178	65.7
	High	39	26	17.4
Work-experience (years)	≤7	91	172	70.6
	≥8	39	70	29.4
Work style	Daytime	45	32	21.0
	Shift	85	210	79.0
Working hours per week	40-48	53	144	52.9
	49-64	51	61	30.2
	≥65	26	37	16.9
Place of duty	Inpatient clinic	76	119	52.4
	ICU+ER*	35	99	36.0
	Outpatient clinic	15	28	11.6

*ICU+ER: Intensive Care Unit and Emergency Room

Table 2. PSS and WCI scale scores

Scales	Physician (N=130)		Nurse (N=242)			
	Mean±SD	Min-Max	Mean±SD	Min-Max	Test value	[a]p
PSS	24.58±9.84	3.00-43.00	35.03±7.98	10.00-56.00	-4.402	[a]0.000*
CC	13.75±3.93	5.00-21.00	11.21±3.41	1.00-21.00	1.667	[a]0.097
PR	9.24±2.72	2.00-15.00	7.26±2,67	.00-15.00	2.780	[a]0.006*
Avoidance	7.35±4.83	.00-17.00	12.81±5,18	.00-24.00	-3.767	[a]0.000*
Distancing	6.52±3.44	.00-14.00	8.48±3.71	.00-17.00	-2.040	[a]0.042*
SSS	7.68±1.99	3.00-12.00	6.89±1.75	1.00-12.00	0.188	[a]0.851

PSS: Perceived Stress Scale, CC: Confronting Coping, PR: Positive Reappraisal, SSS: Seeking Social Support; [a]Independent Sample t-Test

Multiple linear regression analysis results are shown in Table 3. Sociodemographic characteristics that independently determined the PSS and WCI total scores were analyzed using regression analysis. There was a significant association between the PSS score, and gender, level of education, and level of income. PSS scores were significantly lower in the male participants with post graduate education and those who report that they have good

income. There was an important association between WCI CC and PR scores, and level of education and income.

The WCI CC and PR scores were significantly higher in the participants with good income and post graduate education than in those with graduate education and a low level of income.

Age, gender, income, and education were strongly correlated with the WCI avoidance subscale scores. The WCI avoidance scores were significantly lower in males, those older than 32 years, and those with good income and postgraduate education than with low income and graduate education. Age and a level of education were positively correlated with the WCI SSS score as age and a level of education increased the WCI SSS score increased.

Table 3. Multiple linear regression model based on Ways of Coping Inventory (WCI)

Variables	Perceived Degree of Stress (PSS)				Confronting Coping (CC)				Positive Reappraisal (PR)				Avoidance				Seeking of Social Support (SSS)			
	β	SH(β)	95% CI*	p[a]	β	SH(β)	95% CI	p[a]	β	SH(β)	95% CI	p[a]	β	SH(β)	95% CI	p[a]	β	SH(β)	95% CI	p[a]
Age (years)	2.34	0.11	-0.78, 5.46	0.18	0.89	0.112	-0.398, 2.179	0.175	0.05	0.017	-0.52, 0.62	0.864	-1.103	-0.184	-2.20, -0.00	0.049	-0.92	-0.23	-1.71, -0.12	0.02
Gender	2.63	0.12	-1.33, 4.46	0.00	-0.13	-0.016	-0.889, 0.622	0.727	-0.48	-0.079	-1.08, 0.11	0.112	1.143	0.093	-0.00, 2.28	0.050	0.44	0.05	1.06, 0.28	0.44
Marital status	-0.30	-0.01	2.83, 2.20	0.81	-0.07	-0.010	-1.114, 0.957	0.882	-0.64	-0.110	-1.46, 0.16	0.120	0.717	0.061	-0.85, 2.28	0.061	0.20	0.02	-0.92, 1.33	0.72
Having children	-0.40	-0.01	-0.23, 2.43	0.78	0.11	0.014	-1.054, 1.289	0.844	-0.55	-0.091	-1.48, 0.36	0.237	0.394	0.032	-1.37, 2.16	0.663	-0.05	-0.00	-1.33, 1.21	0.92
Income	-2.78	-0.16	0.05, -1.24	0.00	1.50	0.233	0.867, 2.139	0.000	0.89	0.185	0.38, 1.39	0.001	-1.600	-0.166	-2.56, -0.63	0.001	-0.61	-0.09	-1.30, 0.08	0.08
Educational Status	-2.70	-0.21	-0.27, -0.95	0.00	1.40	0.287	0.677, 2.124	0.000	0.88	0.242	0.31, 1.45	0.002	-1.509	-0.207	-2.60, -0.41	0.007	-1.245	-0.260	-2.03, -0.45	0.002
Workplace	0.70	0.08	-3.03, 1.42	0.052	-0.08	-0.025	-0.37, 0.21	0.57	-0.04	-0.020	-0.28, 0.18	0.680	0.417	0.084	-0.02, 0.86	0.067	0.304	0.093	-0.01, 0.62	0.06
Experience	-0.11	-0.01	1.94, 1.74	0.904	0.12	0.029	-0.63, 0.89	0.743	0.467	0.142	-0.13, 1.07	0.130	0.563	0.086	-0.59, 1.72	0.340	-0.069	-0.01	-0.60, 0.47	0.80
R^2	0.437				0.335				0.261				0.320				0.181			

p: Significance level=0.0.5, *p<0.05, R=correlation coefficient, CI=Confidence Interval, β =Unstandardized coefficients Beta, SH (β)= Standardized coefficients Beta.

4. Discussion

The present study investigated the levels of stress and coping styles in physicians and nurses working at a Turkish city hospital. The study purposed to determine the perceived levels of stress in physicians and nurses, and if there are differences based on sociodemographic variables. The nurses had significantly higher PSS scores than the physicians, regardless of sociodemographic characteristics. The study was conducted in 2021 during the third peak of the COVID-19 pandemic. Research performed before the COVID-19 pandemic reported lower levels of stress than those observed in the present study (20-21). Other studies conducted during the COVID-19 pandemic show that nurses have higher PSS scores than physicians (7,22-23). The nurses in the present study had high levels of stress for several reasons; most of them were working in ICUs. The COVID-19 pandemic has taken a toll on the nurses; there were more nurses than physicians in the hospitals; they had lower incomes and social standing; they worked under more difficult conditions than physicians; they had less autonomy and increased workloads; they had less access to personal protective equipment; and they were separated from their families. Heavy workload, patient mortality, optimal care failure, overcrowding, and violence cause stress in healthcare professionals (14,24-26).

Nurses in the present study had significantly higher PSS scores than physicians, regardless of age. It is known that age affects stress. Among healthcare professionals, as age decreases, the level of stress increases (27). In the present study, the nurses had significantly higher PSS scores than physicians, regardless of work experience; however, physicians and nurses with more work experience had lower levels of stress. Earlier studies show that as work experience increases, the level of stress decreases (20,28). The Turkish Ministry of Health has employed a large number of healthcare workers to staff ICUs and clinics due to the increased demand for nurses during the COVID-19 pandemic. Both physicians and nurses, who have been recently employed, experience higher stress levels for various reasons. First, it is the first time they are working in busy ICUs and clinics. Second, they

do not have enough knowledge and experience to deal with day-to-day stressors. Third, they are not used to the hierarchical command-and-control structure. In the present study, the female physicians and nurses had significantly higher PSS scores than their male counterparts, as previously reported (29-31). This may happen because women are expected to fulfill gender roles associated with 'motherly' responsibilities, providing protection, safety and nutrition.

PSS scores did not differ significantly between the present study's physicians and nurses with a level of low income whereas the physicians with middle and high levels of income had significantly lower PSS scores than the nurses. Previous research shows that there is a negative correlation between income and stress in healthcare professionals indicating that healthcare professionals with a high level of income are likely to have a better quality of life and a higher level of satisfaction with life (7,20,33). Healthcare professionals with a low level of income are less likely to access resources, experience professional satisfaction, and acquire know-how for personal achievement and productivity; income was correlated with the present study's participants' levels of stress (1,28).

In the present study there weren't any significant differences in the CC and SSS scores between the physicians and nurses (p=0.097 and p=0.851, respectively); however, the physicians had significantly higher PR scores than the nurses (p=0.006). On the other hand, the nurses had higher WCI avoidance and distancing scores than the physicians. According to Mert Boga et al., physicians use CC and SSS whereas nurses use avoidance and distancing (33). In contrast, some studies report that nurses use PR, CC, and SSS more often than physicians (34,35). These findings suggest that healthcare professionals should use active coping styles to more effectively deal with stress. Physicians use active coping styles more often than nurses because they have more resources (professional knowledge, skills, and autonomy) than nurses (36).

There was not any significant differences in the WCI CC and SSS scores between the present study's physicians and nurses those under 32 years old; however, the older physicians and nurses with more work experience had higher WCI active coping scores. Age and work experience are negatively associated with stress because young healthcare professionals with little work experience are less likely to use active coping strategies (37). Young healthcare professionals are less effective at coping with stress because they do not have sufficient knowledge and experience and have an increased workload. In the present study there wasn't a significant difference in the WCI distancing score between the female and male participants; however, Sulemis and Donmez observed that female healthcare professionals use the SSS coping style more often than their male counterparts (38). Akanji et al. reported that Nigerian female physicians primarily use emotional sharing to cope with stress and seek social support for their responsibilities (1). Stereotypical gender roles increase women's responsibilities and burden and thus causing stress. The fact that more of the present study's female participants used SSS more than males may have been due to the compulsory social distancing experienced during the pandemic.

The present findings show that the physicians used active coping styles whereas the nurses used passive coping styles, depending on the department in which they worked. Once noted that nurses working in inpatient clinics use avoidance and distancing coping styles whereas emergency room nurses use SSS coping (39). ICUs and emergency departments are stress-inducing units that require hard work. The differences in coping styles between the present study's nurses and physicians might have been related to the fact that the nurses had more responsibilities and workload than the physicians.

The present findings show that the physicians used active coping strategies and the nurses used passive coping strategies, depending on their working style (daytime or shift). Working in shifts leads to doing overtime. Healthcare professionals working in shifts are more likely to work overtime, resulting in sleep deprivation and stress, and the tendency to use passive coping styles (16,17). Most likely, nurses use passive coping styles more often than physicians because of the multiple tasks they are expected to fulfill without breaks.

The resent study's participants with middle and high levels of income used active coping styles whereas those with a low level of income used passive coping styles; however, there wasn't a significant difference in the WCI distancing and SSS scores between the physicians and nurses with a low level of income. These findings are not surprising because healthcare professionals with a high level of income are more likely to use active coping strategies.

5. Conclusions

In conclusion, the COVID-19 pandemic has had a significant impact on the mental health and wellbeing of nurses and physicians. They are facing high levels of stress, and they adopt different coping styles to manage their stress levels. It is important for healthcare organizations to prioritize the mental health and

wellbeing of their employees by providing adequate resources and promoting healthy coping styles. By doing so, nurses and physicians can manage their stress levels effectively and provide the best possible care to their patients. Also nursing schools and hospitals should encourage nurses to adopt active coping styles, including confronting coping, positive reappraisal and seeking social support. Physicians and nurses should undergo stress screening at regular intervals. Manager of the city hospitals should develop psychosocial support programs to promote effective stress management and active coping styles for physicians and nurses.

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Authorship Contribution:

EAY: Concept, method, data collection, analysis, interpretation and writing.

SK: Concept, design, method, analysis, interpretation, writing and critical revision.

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